WHAT IS CLAMED IS:

1. A device for reducing jet engine exhaust noise, comprising:

at least one oscillating jet coupled to an engine exhaust portion, said oscillating jet comprising:

a nozzle with a triangular shaped orifice formed therein, and

an exhaust pipe coupled to said nozzle,

wherein a flow of gas passes through said triangular shaped orifice and exits from said exhaust pipe, having an oscillating flow, and

wherein at least a portion of said gas from said exhaust pipe mixes with engine exhaust passing through said engine exhaust portion.

2. The device for reducing jet engine exhaust noise according to claim 1, wherein said gas is air.

3. The device for reducing jet engine exhaust noise according to claim 1, wherein said engine exhaust portion comprises a lip portion positioned adjacent to a point at which said engine exhaust exits said engine exhaust portion, and wherein said at least one oscillating jet is positioned proximate to said lip portion.

4. The device for reducing jet engine exhaust noise according to claim 3, wherein said at least oscillating jet is positioned within said lip portion.

5. The device for reducing jet engine exhaust noise according to claim 3, wherein said at least one oscillating jet is positioned on an outer surface of said lip portion.

6. The device for reducing jet engine exhaust noise according to claim 3, wherein said at least one oscillating jet is positioned such that said flow of gas enters said engine exhaust portion at a position upstream from said point at which said engine exhaust exits said engine exhaust portion.

7. The device for reducing jet engine exhaust noise according to claim 1, wherein said oscillating jet has an angle between about 0 and about 120 degrees with respect to a flow of said engine exhaust.

8. The device for reducing jet engine exhaust noise according to claim 1, wherein said oscillating jet has an angle of about 30 degrees with respect to a flow of said engine exhaust.

9. The device for reducing jet engine exhaust noise according to claim 1, wherein said triangular shaped orifice is variable.

10. The device for reducing jet engine exhaust noise according to claim 1, wherein said triangular shaped orifice is equilateral.

11. The device for reducing jet engine exhaust noise according to claim 1, wherein a length of said exhaust pipe is variable.

12. The device for reducing jet engine exhaust noise according to claim 1, wherein at least one channel couples said nozzle to a source of said gas, wherein said source is located upstream of said engine exhaust portion.

13. The device for reducing jet engine exhaust noise according to claim 12, wherein said source is at least one of an engine compressor, an engine turbine, and an engine bypass portion.

14. The device for reducing jet engine exhaust noise according to claim 12, further comprising a flow control valve for said gas positioned upstream of said nozzle in said channel.

15. The device for reducing jet engine exhaust noise according to claim 12, further comprising a flow stabilizer for said gas positioned upstream of said nozzle in said channel.

16. The device for reducing jet engine exhaust noise according to claim 12, wherein said source provides a flow of said gas with a pressure in the range of about 5 to about 500 PSI.

17. The device for reducing jet engine exhaust noise according to claim 12, wherein said source provides a flow of said gas with a pressure of about 50 PSI.

18. The device for reducing jet engine exhaust noise according to claim 1, wherein said exhaust pipe has a lip portion provided at an exit of said exhaust pipe, wherein said gas passes through a circular opening in said lip portion.

19. The device for reducing jet engine exhaust noise according to claim 18, wherein a diameter of said circular opening is about 90% of a diameter of said exhaust pipe.

20. The device for reducing jet engine exhaust noise according to claim 18, wherein said circular opening has a chamfered edge.

21. The device for reducing jet engine exhaust noise according to claim 1, wherein said triangular shaped orifice has a chamfered edge.

22. The device for reducing jet engine exhaust noise according to claim 21, wherein said chamfer is one of straight, rounded, beveled and squared.

23. The device for reducing jet engine exhaust noise according to claim 12, further comprising a heat source coupled to said channel to heat said gas prior to entering said nozzle.

24. The device for reducing jet engine exhaust noise according to claim 1, wherein a ratio of L/D_E is in the range of about 1.5 to about 4, where L is a length of the exhaust pipe and D_E is a diameter of the exhaust pipe.

25. The device for reducing jet engine exhaust noise according to claim 1, wherein a ratio of D_E/D_{TO} is in the range of about 2 to about 5, where D_E is a diameter of the exhaust pipe and D_{TO} is a diameter of a circle having the same area as said triangular shaped orifice.

26. The device for reducing jet engine exhaust noise according to claim 1, further comprising a heat source to heat said gas prior to said gas exiting said exhaust pipe.

27. A device for reducing jet engine exhaust noise, comprising:

a plurality of oscillating jets coupled to an engine exhaust portion, each of said oscillating jets comprising:

a nozzle with a triangular shaped orifice formed therein, and

an exhaust pipe coupled to said nozzle,

wherein a flow of gas passes through said triangular shaped orifice and exits from said exhaust pipe, having an oscillating flow, and

wherein at least a portion of said gas from said exhaust pipe mixes with engine exhaust passing through said engine exhaust portion.

28. The device for reducing jet engine exhaust noise according to claim 27, wherein said plurality of oscillating jets are positioned symmetrically with respect to said engine exhaust portion.

29. The device for reducing jet engine exhaust noise according to claim 27, wherein said gas is air.

30. The device for reducing jet engine exhaust noise according to claim 27, wherein said engine exhaust portion comprises a lip portion positioned adjacent to a point at which said engine exhaust exits said engine exhaust portion, and wherein at least one of said oscillating jets is positioned proximate to said lip portion.

31. The device for reducing jet engine exhaust noise according to claim 30, wherein said at least one oscillating jet is positioned within said lip portion.

32. The device for reducing jet engine exhaust noise according to claim 30, wherein said at least one oscillating jet is positioned on an outer surface of said lip portion.

33. The device for reducing jet engine exhaust noise according to claim 30, wherein said at least one oscillating jet is positioned such that said flow of gas enters said engine exhaust portion at a position upstream from said point at which said engine exhaust exits said engine exhaust portion.

34. The device for reducing jet engine exhaust noise according to claim 27, wherein at least one of said oscillating jets has an angle between about 0 and about 120 degrees with respect to a flow of said engine exhaust.

35. The device for reducing jet engine exhaust noise according to claim 27, wherein at least one of said oscillating jets has an angle of about 30 degrees with respect to a flow of said engine exhaust.

36. The device for reducing jet engine exhaust noise according to claim 27, wherein in at least one of said oscillating jets said triangular shaped orifice is variable.

37. The device for reducing jet engine exhaust noise according to claim 27, wherein in at least one of said oscillating jets said triangular shaped orifice is equilateral.

38. The device for reducing jet engine exhaust noise according to claim 27, wherein in at least one of said oscillating jets a length of said exhaust pipe is variable.

39. The device for reducing jet engine exhaust noise according to claim 27, wherein said nozzle of each of said oscillating jets is coupled to a channel which couples each of said nozzles to a source of said gas, wherein said source is located upstream of said engine exhaust portion.

40. The device for reducing jet engine exhaust noise according to claim 39, wherein said source is at least one of an engine compressor, an engine turbine, and an engine bypass portion.

41. The device for reducing jet engine exhaust noise according to claim 27, wherein said nozzle of each of said oscillating jets is coupled to an individual channel, where each of said individual channels are coupled to a source of said gas through, wherein said source is located upstream of said engine exhaust portion.

42. The device for reducing jet engine exhaust noise according to claim 41, wherein said source is at least one of an engine compressor, an engine turbine, and an engine bypass portion.

43. The device for reducing jet engine exhaust noise according to claim 39, further comprising a flow control valve for said gas positioned upstream of said nozzle in said channel.

44. The device for reducing jet engine exhaust noise according to claim 41, further comprising a flow control valve for said gas positioned upstream of said nozzle in at least one of said channels.

45. The device for reducing jet engine exhaust noise according to claim 39, further comprising a flow stabilizer for said gas positioned upstream of said nozzle in said channel.

46. The device for reducing jet engine exhaust noise according to claim 41, further comprising a flow stabilizer for said gas positioned upstream of said nozzle in at least one of said channels.

47. The device for reducing jet engine exhaust noise according to claim 39, wherein said source provides a flow of said gas with a pressure in the range of about 5 to about 500 PSI.

48. The device for reducing jet engine exhaust noise according to claim 41, wherein said source provides a flow of said gas with a pressure in the range of about 5 to about 500 PSI.

49. The device for reducing jet engine exhaust noise according to claim 39, wherein said source provides a flow of said gas with a pressure of a about 50 PSI.

50. The device for reducing jet engine exhaust noise according to claim 41, wherein said source provides a flow of said gas with a pressure of 50 PSI.

51. The device for reducing jet engine exhaust noise according to claim 27, wherein said exhaust pipe of at least one of said oscillating jets has a lip portion provided at an exit of said exhaust pipe of said at least one oscillating jet, wherein said gas passes through a circular opening in said lip portion.

52. The device for reducing jet engine exhaust noise according to claim 51, wherein a diameter of said circular opening is about 90% of a diameter of said exhaust pipe of said at least one oscillating jet.

53. The device for reducing jet engine exhaust noise according to claim 52, wherein said circular opening has a chamfered edge.

54. The device for reducing jet engine exhaust noise according to claim 27, wherein said triangular shaped orifice of at least one of said oscillating jets has a chamfered edge.

55. The device for reducing jet engine exhaust noise according to claim 54, wherein said chamfer is one of straight, rounded, beveled and squared.

56. The device for reducing jet engine exhaust noise according to claim 27, further comprising a heat source coupled to said channel to heat said gas prior to entering said nozzle of at least one of said oscillating jets.

57. The device for reducing jet engine exhaust noise according to claim 27, wherein for at least one of said oscillating jets a ratio of L/D_E is in

the range of 1.5 to 4, where L is a length of the exhaust pipe and D_E is a diameter of the exhaust pipe.

58. The device for reducing jet engine exhaust noise according to claim 27, wherein for at least one of said oscillating jets a ratio of D_E/D_{TO} is in the range of about 2 to about 5, where D_E is a diameter of the exhaust pipe and D_{TO} is a diameter of a circle having the same area as said triangular shaped orifice.

59. The device for reducing jet engine exhaust noise according to claim 27, further comprising a heat source to heat said gas prior to said gas exiting said exhaust pipe from at least one of said oscillating jets.

60. A device for reducing jet engine exhaust noise, comprising:

a plurality of oscillating jets coupled to an engine exhaust portion, each of said oscillating jets comprising:

a nozzle with a equilateral triangular shaped orifice formed therein, and

an exhaust pipe coupled to said nozzle, wherein said exhaust pipe has a lip portion provided at an exit of said exhaust pipe,

wherein a flow of air passes through said triangular shaped orifice and exits from said exhaust pipe through a circular opening in said lip, having an oscillating flow, and

wherein at least a portion of said air from said exhaust pipe mixes with engine exhaust passing through said engine exhaust portion.

61. A device for reducing jet engine exhaust noise, comprising:

a plurality of channels coupled to at least one source of a gas; and

a plurality of oscillating jets coupled to an engine exhaust portion and positioned symmetrically with respect to said engine exhaust portion, wherein

each of said oscillating jets is coupled to one of said channels, each of said oscillating jets comprising:

a nozzle with a equilateral triangular shaped orifice formed therein, said orifice having a chamfered edge, and

an exhaust pipe coupled to said nozzle, wherein said exhaust pipe has a lip portion provided at an exit of said exhaust pipe and said lip portion has a circular opening having a diameter which is about 90% of a diameter of said exhaust pipe,

wherein a flow of air passes through said triangular shaped orifice and exits from said exhaust pipe through said circular opening in said lip, having an oscillating flow, and at least a portion of said air from said exhaust pipe mixes with engine exhaust passing through said engine exhaust portion, and

wherein at least one of said oscillating jets has a ratio of L/D_E in the range of about 1.5 to about 4, and a ratio of D_E/D_{TO} is in the range of about 2 to about 5, where L is a length of the exhaust pipe, D_E is said diameter of the exhaust pipe, and D_{TO} is a diameter of a circle having the same area as said triangular shaped orifice.

62. The device for reducing jet engine exhaust noise according to claim 60, wherein a liquid is inserted into said flow of gas prior to said gas exiting said circular opening.

63. The device for reducing jet engine exhaust noise according to claim 62, wherein said liquid is combustible.

64. The device for reducing jet engine exhaust noise according to claim 60, wherein solid particles are inserted into said flow of gas prior to said gas exiting said circular opening.

65. The device for reducing jet engine exhaust noise according to claim 64, wherein at least some of said particles are combustible.

66. The device for reducing jet engine exhaust noise according to claim 61, wherein a liquid is inserted into said flow of gas prior to said gas exiting said circular opening.

67. The device for reducing jet engine exhaust noise according to claim 66, wherein said liquid is combustible.

68. The device for reducing jet engine exhaust noise according to claim 61, wherein solid particles are inserted into said flow of gas prior to said gas exiting said circular opening.

69. The device for reducing jet engine exhaust noise according to claim 68, wherein at least some of said particles are combustible.